



# Final Revision

1st.Pre - Second Term "2023"

إعداد وتصميم / جروب فريق أصدقاء الكمبيوتر - أ/ياسمين شعيب





# Computer – 1<sup>st</sup>.Prep

## Final Revision

✎ **Scratch** consider as a **graphic language for visual programming**.

→ Used in educational programming language.

→ Scratch help you: -

• Develop logical thinking and problem solving.

• Design games and Interactive stories.

✎ **Importance of scratch:**

1. Helps to know programming languages easily.
2. Open source program, you can download from the internet.
3. Available while **online**, and while **offline** too.
4. Supported with Arabic language completely, it has 2 interface (Arabic – language).
5. Scratch used commands which are placed over each other, such as dealing with the puzzle cubes.
6. Helps to think in a logical way.
7. It can be used on different operating systems **Windows – Linux**.

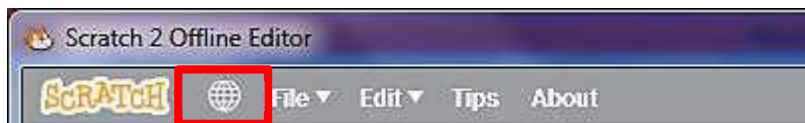
✎ **How to open scratch:**

1-Download the program from

<https://Scratch.mit.edu.scratch2download>

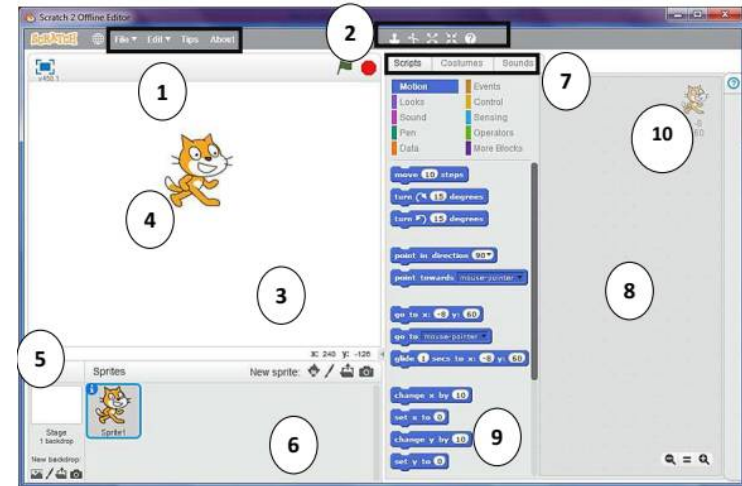
✎ **Changing language of the program:**

1-Click on this icon from the tool bar.



✎ **Main interface of scratch program:**

1. Menu bar	6. Sprites area
2. Tool bar	7. (Script, sounds, costumes) tabs.
3. Stage	8. Script area
4. Sprite	9. Blocks area.
5. Background	10. Point X – Y.



✎ **We can control the stage using these three icons:**

\* To stop the program.

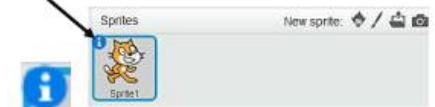
\* To play the program.

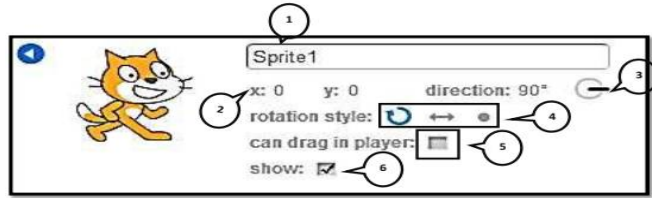
\* To enlarge the stage.



✎ **Sprit information:**

- To display sprit information click on





- 1- Sprite name (can be modified).
- 2- Sprite position (x,y).
- 3- Sprite motion direction.
- 4- Sprite rotation style.
- 5- Sprite drag option.
- 6- Sprite visibility option.

### 🔗 Scripts Groups:

It is Different groups, each one consists of some blocks which used in programing, and each one has a certain color.

- 1. **Motion blocks:** which controls the **movement** of the sprite.
- 2. **Events blocks:** contains blocks which controls the **event happens** on the sprites in the project.
- 3. **Looks blocks:** contains blocks control the **shape and look** of the sprites.
- 4. **Control blocks:** using control blocks to repeat work for order or repetitions of a set of commands within the Script tab.

### 🔗 We have two kinds of repeat:

#### 1-Repeating for a number of times.

We can control number of seconds to repeat the action.

#### 2-Repeating forever.

It will be repeated infinite times.

### 🔗 How to save the project

- 1-From **file** menu choose **save as**
- 2-Choose the location you want to save in.
- 3-Write the file name.
- The extension of the saved file will be **(.sb2)**

### 🔗 To open a new project :

File → new

### 🔗 Open a saved file

File → Open

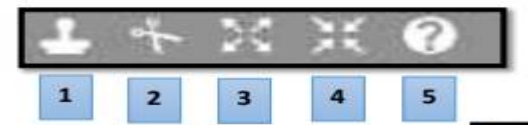
### 🔗 Adding new Sprite

We can add sprites using several ways:

- 1-Adding sprite from the **library**.
- 2-Draw the sprite using **paint** program.
- 3-Import the sprite from any **stored file**.
- 4-Take a photo for the sprite using web **camera**.



### 🔗 Dealing with sprites on the stage



#### 1-Duplicate of sprites

After holding the tool, drag and drop another copy of the sprite.

🌀 Or, Right click on the sprite → Duplicate

#### 2-Deleting the sprite

After holding the tool click on the sprite to delete it.

🌀 Or, Right click on the sprite →Delete

**To undelete a sprite:** Edit menu → undelete

#### 3-Increasing the sprite size

After holding the tool, click on the sprite several times to increase its size.



#### 4-Decreasing the sprite size

After holding the tool, click on the sprite several times to decrease its size.

#### 5-Sprite Help

We can use it to help in explaining the scripts.

✂ **To change the style of the Stage during design to a small stage:**

Edit menu → Small Stage Layout

✂ **Tabs bar:**

It's a very important bar in scratch, we can control sprite using this bar by several ways like:

**1-scripts:** To control script Blocks and Script area.

**2-Sound:** To control adding sounds and recording it.

**3-Backdrop/Customs:** To control the sprite appearance, and the background.

We can use the coloring tools to edit the sprite inside the custom.

⚙ When activating the sprite → **customs** tab appears

⚙ When activating the stage → **backdrops** appear

✂ **Steps to add a backdrop to stage:**

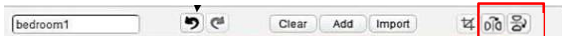
1-Choose wallpaper from the **library**.

2-Draw a new background using **paint** program.

3-Upload any background from any **stored medium**.

4-Take a photo for the background using **camera**.

⚙ When you press the "Flip left right" selection reflected the background image **horizontally** like a mirror.



⚙ When you press the "Flip up down" selection reflected the background image **vertically**.

⚙ You can undo one of selection, just press Undo.

Sprite **customs** means that one sprite will have several **appearances** to do a **motion**.

✂ **Steps to add new customs for the same sprite:**

1-Activate the sprite by double click on it.

2-Click on custom label.

3-click on import to import the other customs.

⚙ **We can switch between customs** of the sprite by using this script Next custom in **Looks group**.

✂ **Different sprite effects (colors & customs)**

We can change the appearance (style) & the color of the sprite using this script.

✂ **Clearing the effects**

We can clear all effects using this script

✂ **Stopping the script**

We can stop all scripts using this script

✂ **Pen blocks:**

⚙ It's very important scripts in the educational Projects.

⚙ It can be used to make the sprite draw lines and Color it during its movement.






✂ **Sound blocks: We can add sounds by several ways:**

1-Import it from the library.








2-Record it using microphone.

## Main Codes in Scratch





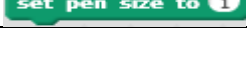
### Motion Blocks

	The sprite moves number of steps.
	To control the direction of sprites
	To move to a certain direction X – Y axis
	To prevent sprite from leaving the stage.
	To bounce in the same direction




### Looks Blocks

	Display message for 2 seconds.
	A message appear and not disappear.
	Display a think message for 2 seconds.
	The activated sprite appears on the stage.
	The activated sprite will disappear from the stage.
	Make coloring and custom effects on sprite.
	Clear any effect from the sprite.


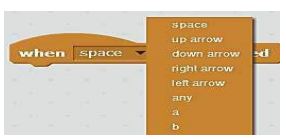
### Pen Blocks

	Putting the pen down, the sprite drawing a line
	Putting the pen up. The sprite move without painting anything.
	Choose a color for a pen
	Clearing any lines on the stage
	change the line thickness

### Control Blocks

	To wait number of seconds
	Repeating for a number of times.
	Repeating forever

### Events Blocks

	To show the presentation, must put on the beginning of the script.
	To control moving a sprite using arrows in the keyboard.





## Unit 2: Internet Concepts

 **Network:** is a connection between two computers or more.

### Types of Network: (LAN / WAN)

**LAN (Local Area Network)** is a connection between two computers or more in a limited area (**small**)

**WAN (Wide Area Network)** is a connection between two computers or more in an unlimited area (**large**)

### Internet:

Is a group of network connecting to each other, each network consists of group of computers, communications lines and equipment, through which the organization of the communication process.

### Internet Connectivity requirement:

- a) Computer (PC) Contain Network Card
- b) Internet Service Provider (ISP).
- c) Browser ( Google chrome -Internet Explorer -Firefox )

### Protocol:

- If two persons want to deal with each other it is preferable to set a protocol to communicate

### Protocol used in the internet:

#### 1) TCP / IP

- TCP (Transmission control Protocol)  
Responsible for verify correct delivery of **data from a computer to another.**
- IP (Internet Protocol)  
Responsible for transfer **data between computers.**

## 2) FTP (File Transfer Protocol)

Responsible for **transfer file to and from the internet.**

### Website:

It is one webpage or more grouped together under a certain name and stored in web server and has an address on the internet

( URL → Uniform Resource Locator)

### URL elements:

http:// [www.moe.gov.eg](http://www.moe.gov.eg)

- 1) http → Hypertext transfer protocol (decides the protocol type)
- 2) www → World Wide Web
- 3) moe → name of the computer where the files are stored (decides the server, the computer set with the stored data)
- 4) gov → organization
- 5) eg → country

### Webpage:

Electronic document published on the internet and it is displayed through the internet browser.

### Home page:

Is the first page which appears when loading the website and helps in moving to other webpage easily.

### Hyperlink:

Is an image or linked text when we click on it enables

- Taking you to a different part of the same page.
- Taking you to a different page within the website.



- Taking you to page different website.

### **Download:**

To copy or move file or program through the internet to your computer. (from the internet to your computer)

### **Upload**

To transfer a file or program from your computer to a central computer. (From computer to the internet).

### **Internet services**

- 1) **Search** by using search engine such as: Google / Bing.
- 2) **Mailing list**: lists of e-mail addresses used to forward any mail to a group of people.
- 3) **File transfer protocol**: is a to transfer files on the internet to make it easy for everyone to share files.
- 4) **New groups**  
sites on the internet where people share and exchange ideas about certain topics.
- 5) **Chat**: it is the service of meeting of different people from all over the world to talk to each other at the same time.
- 6) **Social Media sites** (Facebook / Twitter) Where social exchange news between members of the community.
- 7) **E-commerce**: This service is provided by some Internet sites to buy and sell through the Internet.
- 8) **E-mail**: service to exchange e-mails that may contain text, pictures, video clips.  
**www**: it is an abbreviation of world wide web and it means to access information which is about page written in a language called HTML and shows by a program called Browser ( it is a way to reach to the information)

**EGYPTIAN KNOWLEDGE BANK** → <http://www.ekb.eg>

### **To create an electronic project you need:**

Hardware and software that can be used by to create an electronic project:

#### 1) **Software :**

- a. Texts editor
- b. Image editor
- c. Video editor
- d. PowerPoint
- e. Other programs that may help you.

#### 2) **Hardware**

- a. Storage capacity to save the project files
  - b. A wide space capacity RAM to deal with different software like creating and editing images, videos files editing , ...etc.
  - c. A high speed processor
- 3) **Log into your files** anywhere anytime to edit , update and save your project files
  - 4) **Allowing your colleagues to**
    - Go through your project files
    - Be able to edit your files both at the same time or at another time

### **Cloud Computing**

⇒ It is the technology that depends on transfer processing and storage of a computer to what is known as (Cloud), which is a server or SERVERS that can be reached through the internet, to make programs and applications available.  
⇒ It is a new concept to share your electronic sources to produce and exchange information on the internet.



### ✂ What are the basic components of Cloud Computing?

The basic components are

- 1- **Software**: they are the **applications** that needed like text editor, spreadsheet, image editor...etc
- 2- **Platform**: It is **the saving of files and processing the database for all the users.**
- 3- **Infrastructure** includes **hardware** such as processors and servers and storage

### ✂ Requirements to login cloud computing

They are as follows:

1. A computer set [ PC, laptop, I-pad, mobile phone or any set able to connect to the internet.
2. An operating system enables you to get connected.
3. An internet browser.
4. Internet connection
5. Cloud computing provider

### ✂ What is a Cloud Computing provider?

It is like a service of web hosting but with more availability, It allows the users and developers to use all the available sources efficiently,

### ✂ What are the services provided by cloud computing?

Some examples are

- **Email service**, like **Hotmail, Yahoo mail, Gmail**
- **Cloud storage**: which is storage capacity provided by the service providers like **Google Drive** which provided by **Google**, and **One drive** provided by **Microsoft**.

- **Cloud Music** like Google music, I Cloud, Sound Cloud.
- Which are provided in the form of services to cloud computing users like Google Docs, Photoshop Express

### ✂ What are the benefits of Cloud Computing?

1. **You can login your** personal data or applications from any place with internet service; because all this is not stored on your hard disc, it is on the Providers' servers.
2. **Reducing the cost through:**
  - Reduce the Hardware cost, because the providers will do the job, which requires giant computers with giant specifications of processor, RAM, storage and so on.
  - There is no need to buy original software or copyright as they are installed on the server.
  - There is no need to buy the other requirements like big storage media to back up your data.
  - Guarantee the service work continuously as in Cloud Computing all your data will be stored on more than a server to get it back any time.
  - The provider will repair any breakdown or bugs fast, saving time and cost.
3. **Share the resources** providing facilities and flexibility
4. Ability to link different websites, like social media applications.
5. **Ability to use** it in different fields like medicine, education, industry or agriculture.
6. **In Education**, Cloud Computing provides a more efficient and suitable experience; Cloud computing stores everything in one place the class register, attendance, home





assignments, curricula and so on, and everyone can login to different subjects.

### What are the disadvantages of Cloud Computing?

- It needs internet connection non-stop.
- The possibility of reducing the storage capacity or options.
- Personal data online makes it liable to theft and misuse.
- Disability to reach your data in case of not being connected or a break in the website or the internet.
- The agreement items are too weak to protect the user copyright.

### The most well-known service providers of cloud computing

- **Red Hat**: provide free cloud computing.
- **Google**, the company provides Google App and Google drive for cloud computing storage.
- **Microsoft** provides One Drive and Office 365
- **Amazon**, is the most famous company in the field of cloud computing

## **CLOUD COMPUTING SERVICES**

### How to use cloud computing services?

To use Google Drive or Microsoft Office 365, you must have an email account.

To use Google Drive services, you have to do the following:

- 1- Create a Gmail account
- 2- Enter the required information
- 3- Activate the account

### Create an email account for cloud computing

To create a Gmail account, do the following steps:

1- Open the internet browser, write the Google URL to upload the homepage

2- Click the Gmail icon or select it

**Notice:** You can also select Google Apps, and select Drive

The main page Gmail appears

3- Click "Create account"

Account information registration form appears

4- Enter the required information

5- Activate the account clicking Next Step

### Using a cloud computing service

**To use one of the Google Drive services, it goes from the email account you created. Follow these steps:**

- open the internet browser

- Write Google in the address bar and wait till it uploads the homepage.

Click Drive on top of the page

- The homepage will display

- Enter your account information [the email account and password.

- click sign in

- The main page of cloud service will appear and a dialog box will give you some information about Google Drive

- After closing the dialog box, the main page of your cloud computing account appears.



### Creating a document using Google Docs

Through the cloud computing service, you can create a document using Google Docs, follow these steps:

1- Click New, Select Google Docs from the drop list

A document will be created

2- Name the document

3- Write text in the text place

#### From the FILE menu do the following:

- Save the document
- Rename the document
  - Page layout setup
  - Print document.

### Share your document with a colleague

After writing the text in the document, you can share the document with your colleagues by clicking “Share”

The following dialog box appear

#### **Safe use of the internet**

#### Safety factors to maintain your health while using computer

- 1) Choose suitable light
- 2) Around your vision every 10 minutes for 10 sec
- 3) Stand a minute for every 30 minute spent in front of the device
- 4) The seat level must be compatible with the computer
- 5) Leave space between you and the machine about 50 to 75 cm.
- 6) Move your neck randomly every 20 minute
- 7) The best location for the device to be in front of you, the part that contains the computer components must be away from the body.

8) Using the mouse, move your hand down and right.

9) Move your feet while sitting down

10) Put any hot drinks in winter and cool in the summer

### Some terms concepts for safe use of the internet

#### • Cyber Bulling:

It is the wrong way of expression in chat rooms or messaging or even SMS either on the internet or the phone.

#### • Happy Slapping:

It is the attack of a victim while not paying attention. The partner takes a photo by the mobile phone or digital camera on the computer, then publishing the photo

#### • Phishing:

It is pretending to be an official body to get personal and financial information about others

#### • Contempt:

It is adding rude comment in a chat online.

#### • Spam:

They are the undesirable messages that come from different places with advertisement or news that may contain a virus or harmful material.

#### • Firewall

It is the software or hardware that prevents unlicensed people from surfing certain illegal or impolite sites.